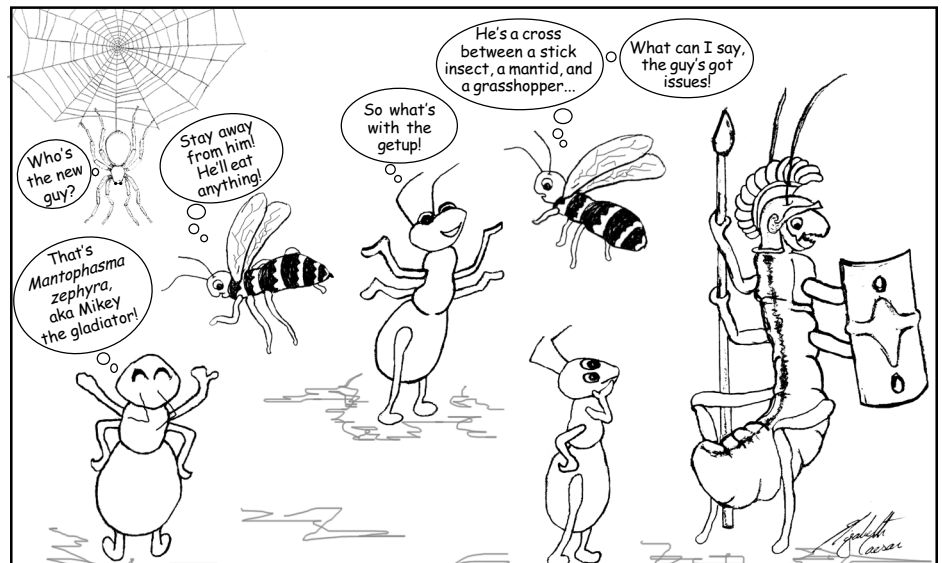


A New World Order

May Berenbaum

At least in one way, I am a little like the late comedian Milton Berle (not in too many ways, though; he probably enjoyed wearing dresses more than I do). Until his death in March 2002 at the age of 93, Milton Berle was always the person newspaper editors turned to for a pithy quote whenever any prominent aging vaudevillian died (the pithy quote when Berle himself died was provided by Bob Hope, who, going on 99, is left as spokesperson for no-nagenarian comedians). Whenever a particular kind of insect news hits the headlines, I get a call from some media outlet or other for my reaction. People do not call me for stories about mosquito-borne West Nile virus in Chicago or locust plagues in Afghanistan or other typical insect disaster stories. Rather, I get calls for the “feel-good” insect stories. Needless to say, I do not get called all that often. I get calls for quotes once a year when woollybear caterpillars start to cross the roads in droves and when the first “bees” of spring (which are usually syrphid flies) make an appearance. I also get called whenever any insect-related movie opens in town. Most recently, I went all the way to Chicago for a live television interview about the opening of the new “Spiderman” movie, even after I explained to the production assistant that spiders are not insects. Every now and then, though, I get asked about a real story. This happened not long after the first report appeared of the discovery of the Mantophasmatodea, the first new order of insects to be described in more than 80 years.

I first became aware of this story myself when I saw an April 8th post from Carlos Flechtmann on the Entomology Discussion List (entomo-l), containing a link to a National Geographic web site (<http://nationalgeographic.com/news>) with the story of the new taxon. Basically, the story, dated March 28, 2002, described the work of Oliver Zompro, a graduate student at the Max Planck Institute of Limnology in Plön, Germany, interested in stick insects, or phasmids. Zompro noticed a resemblance between phasmid-like fossil insects found in



40-million-year-old Baltic amber (familiar but puzzling to paleoentomologists because the fossils did not clearly belong to any extant orders) and a phasmid-like insect on a pin in the British Museum collected a half-century ago in Tanzania. Intrigued, he made a concerted effort to determine if this group of peculiar insects was still around. A query to museums in Africa produced a response from Eugene Marais, curator of the National Museum of Namibia, that their collection had a specimen from the Brandberg Mountains. Conservation International, the Max Planck Institute, and the National Museum of Namibia joined forces to mount a 16-person multinational expedition to the Brandberg Mountains, which resulted in the capture of over a dozen living specimens. The designation of new order status was evidently merited by the unusual morphology and apparent behavior. Zompro called this insect “the gladiator” in honor of the movie of the same name. Zompro was quoted in the article as describing the insect as a “cross between a stick insect, a mantid, and a grasshopper” but details beyond that were not provided in the article, other than to say that the gladiator displays the very un-phasmid-like behavior of eating other insects.

Needless to say, this story piqued my interest, and I immediately forwarded it to Jim Whitfield, the insect systematist whose office is across the hall from mine (I guess I must have assumed that email would be faster than just walking across the hall and knocking on his door). Of the many questions I had, the most important was whether Jim thought this was a legitimate report, given that there was no indication in the National Geographic account of a publication in a refereed journal article about the find. He did a quick web search and confirmed that, according to the Max Planck web site, a publication by Klaus Klass, Oliver Zompro, Niels Kristensen, and Joachim Adis describing a new order named Mantophasmatodea was in fact pending. The article eventually came out in *Science*, published online on April 18 (www.sciencexpress.org/18_April_2002/Page1/10/1126/science.1069397) and in print in the May 24, 2002 issue (Klass et al. 2002). Details were readily available in the article. *Mantophasma zephyra* (aka the gladiator) exhibits a phasmid-like general resemblance to a stick, but, unlike phasmids, it lacks an elongate mesothorax. Unlike the resolutely vegetarian phasmids, the gladiator has an apparent mantis-like taste for insect prey but,

unlike mantids, gladiators lack raptorial forelegs. Like grasshoppers and the rest of the members of the order Orthoptera, the gladiator has generalized chewing mouthparts, but, unlike grasshoppers, the gladiator lacks saltatorial hind legs. So, officially, there are now 31 insect orders (for those keeping score).

The other detail that I thought I needed to get straight dealt with the fact that the National Geographic story (and virtually every other story that followed, of which there were many) highlighted that the new order was the first in 87 (National Geographic) or 88 (Yahoo News 'Scientists Discover New Insects' Wednesday April 17, 2002) years. I wondered if Jim knew just which insect order had been the last described. He guessed that the stories referred to the Grylloblattodea, "a narrow winner" in Jim's words, over the Zoraptera; the first description of what was to be classified as a grylloblattid was by Walker (1914), whereas the first description of a zorapteran did not appear until 1915 (Silvestri 1915). In fact, when their paper finally appeared in print, Klass et al. (2002) confirmed Jim's guess, writing that "the recognized insect order based on the most recently discovered extant taxon is the Grylloblattodea (=Notoptera, ice crawlers), the first of whose 26 currently known species was described in 1914." But this I think was unfair to the Zoraptera. In 1913, Silvestri proposed a new order to accommodate the zorapterans, whereas Walker (1914) described his grylloblattid as "a new species of Orthoptera forming a new genus and family." In fact, my 1976 edition of *Introduction to the Study of Insects* (Borror et al. 1976) does not even include the Grylloblattodea as an order, so I am still not sure when the grylloblattids officially received their due or whether they are still crawling around in their ice caves in search of their proper place in the world.

The difficulty I had in actually documenting how new orders come to be was, if nothing else, enlightening. For one thing, it appears to me that a lot of the originality seems to have gone out of the naming process. Early twentieth century orders have distinctive, if not always readily graspable, names, such as Embioptera (from the Greek *embio* or 'lively' and *ptera* or 'wings'). Even Zoraptera (*zor* meaning 'pure' and *aptera* meaning 'wingless') is unique and memorable, if not totally accurate (the first species identified happened to be wingless but a few of the 22 known species do have wings). But there has been a century-long trend toward blending names, of which Mantophasmatodea is only the most recent manifestation. The name of its predecessor, the Grylloblattodea, is not mysterious and exciting at all; it rather straightforwardly refers to the fact that grylloblattids share characteristics of gryllids (crickets) and blattids

(cockroaches). At least one of the news articles about the gladiator suggested that members of the Grylloblattodea might be the closest relatives of Mantophasmatodea. What if, in the mountains of Namibia, there lurks a species intermediate between these orders? Is it destined to be named the Grylloblattomantophasmatodea? Crossword puzzle buffs, take note ("What is a 28-letter word that is not antidisestablishmentarianism?").

This technical fine point did not matter, however, when I was asked to write an op-ed piece for *Newsday* about the discovery of this new order of insects. I suppose I should not have been too surprised to be asked because, after all, there was a movie connection (although I still actually have not seen "Gladiator"). I did not know much about *Newsday* other than the fact that, according to my brother Alan, a New York City resident, it is a reputable Long Island/Queens-based newspaper. A quick check of their website confirmed that this was a legitimate outfit that could boast of having won 17 Pulitzer Prizes, as well as numerous other journalism awards (including one given out by a group known for reasons I could not ascertain as the Society of Silurians). I was asked to explain why discovering the first new order in 87 (or 88) years was newsworthy. I really appreciated the invitation to write the essay, and I also appreciated being asked what the significance of the discovery was, since, up until that point, I had mired myself in the minutiae of trying to find the original description of the order Zoraptera (the journal *Bollettino del Laboratorio di Zoologia Generale e Agraria della R. Scuola Superiore d'Agricoltura in Portici* not being readily available even in the University of Illinois' extensive collection).

So I wrote an essay, remarking on the biological significance of living fossils and the importance of documenting biological diversity before anthropogenic changes lead to mass extinctions. The essay appeared on June 9 (Berenbaum, 2002). I do not know how many people actually read it, but I hoped that I had done the gladiator justice. At the very least, I think my essay provided an alternative interpretation of the significance of the discovery to the one that appeared a few weeks earlier in *The Sun*, the tabloid newspaper available at the check-out counter of most grocery stores. That story appeared on p. 19 of the May 21 issue under the headline "Flesh-Eating Locusts Escape U.S. Laboratory: Technician Needs 18 Stitches After Attack!" I could not imagine at first that the story was about *Mantophasma zephyra* but the first paragraph set me straight:

"Scientists have issued a dire warning against a plague of flesh-devouring locusts, representatives of a whole new order discovered in southern Africa. The carnivorous bugs have been given the horrific nickname, 'the gladiator' They resemble crickets and stick insects, but are as closely related to crickets as beetles are to butterflies. Their new scientific name is mantophasmatodea, and they have survived in the deserts of Namibia unchanged for 50 million years."

The story goes on to explain that "curious scientists" have been raising "fast-breeding gladiators for study, despite the dangers" and have released at least five in the vicinity of Tulsa, Oklahoma, which, according to the technician who survived the vicious attack, "is not that different from Namibia." I guess they just don't make feel-good stories the way they used to.

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May Berenbaum is a professor and head of the Department of Entomology, University of Illinois, 320 Morrill Hall, 505 South Goodwin Avenue, Urbana, IL 61801. Currently, she is studying the chemical aspects of interaction between herbivorous insects and their hosts.

